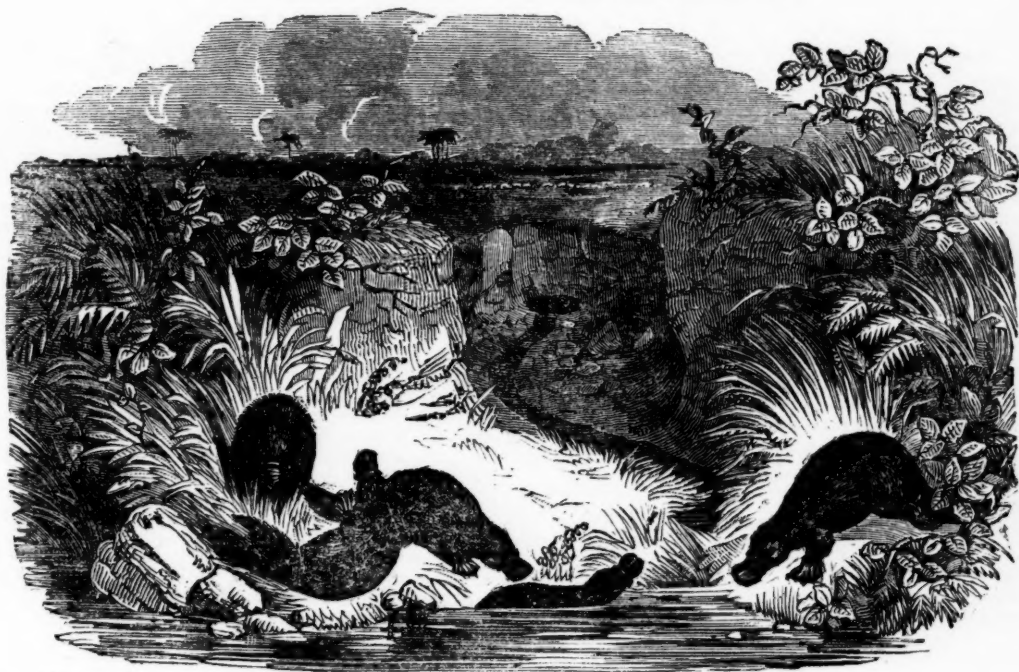




UNDER THE DIRECTION OF THE COMMITTEE OF GENERAL LITERATURE AND EDUCATION
APPOINTED BY THE SOCIETY FOR PROMOTING CHRISTIAN KNOWLEDGE.

THE DUCK-BILL, (*Ornithorhynchus paradoxurus*.)



DUCK-BILLS, AND THEIR BURROW.

We have already* given a short description of this singular creature, which is found only in Australia, but in a recent part of the *Transactions of the Zoological Society of London*, there appears so excellent an account of the natural history and habits of the Duck-Bill, from the able pen of Mr. Bennet, that we are induced to return to the subject, the more particularly as his observations were made on the living animal. The Duck-Bill, on account of its burrowing habits, is called by the colonists the Water-Mole.

In describing his first sight of a living *Ornithorhynchus*, Mr. Bennet says,—

We soon came to a tranquil part of the river, such as the colonists call a pond, on the surface of which numerous aquatic plants grew. It is in places of this description, that the *water-moles* are most commonly seen, seeking their food among the aquatic plants, whilst the steep and shaded banks afford them excellent situations for forming their burrows. We remained stationary on the banks, with gun in rest, waiting their appearance with some degree of patience; and it was not long before my companion quietly directed my attention to one of these animals paddling on the surface of the water, not far distant from the bank on which we were then standing. In such circumstances they may be readily recognised by their dark bodies, just seen level with the surface, above which the head is slightly raised, and by the circles made in the water around them by their paddling action. On seeing them the spectator must remain perfectly stationary, as the slightest noise or movement of his body would cause their instant disappear-

ance, so acute are they in sight or hearing, or perhaps in both, and they seldom re-appear when they have been frightened. By remaining perfectly quiet when the animal is "up," the spectator is enabled to obtain an excellent view of its movements on the water; it seldom, however, remains longer than one or two minutes, playing and paddling on the surface, soon diving again and re-appearing a short distance above or below, generally according to the direction in which it dives. It dives head foremost with an audible splash.

Although the animal may "come up" close to the place where the sportsman is standing, it would be useless to attempt to level the gun, for that action alone would cause its instantaneous disappearance; but after waiting patiently until the animal dives, and watching the direction in which it sinks, preparation must be made to receive it with the discharge of the piece instantly on its re-appearance on the surface, which (when it descends unfrighted,) is almost certain to take place in a short time. A near shot is necessary, a distant one is almost hopeless; and the aim should be invariably directed at the head, in which spot the shots are more likely to take effect than in the loose dense integuments of the body. I have seen the skull shattered by the force of the shot, when the integuments covering it have scarcely suffered injury.

When the fur of the animal is wet, it more resembles a lump of dirty weeds than any production of the animal kingdom. The spur on the hinder feet of the male *Ornithorhynchus* has been said, by those who have written on the subject, to contain a very deadly poison; this false idea Mr. Bennet set at rest by experiment. Speaking of one recently taken, he says,—

* See *Saturday Magazine*, Vol. I., p. 115.

This specimen being a male, and having heard so much related about the injurious effects resulting from a puncture of the spur, I determined to avail myself of the opportunity to ascertain the correctness of the assertion. As soon, therefore, as it became lively, (it had been wounded,) I put its "poisonous" spurs to the test. I commenced by placing my hands in such a manner, when seizing the animal, as to enable it, from the direction of the spurs, to use them with effect; the result was, the animal made strenuous efforts to escape, and in these efforts scratched my hand a little with the hind-claws, and even, in consequence of the position in which I held it, with the spur also. But although held so rudely, it neither darted the spur into my hand, nor did it even make an attempt to do so.

Mr. Bennet made many other attempts with animals which were unwounded, but could never induce one of them to make use of their spurs.

The burrows of the *Ornithorhynchus* have one entrance, usually about the distance of a foot from the water's edge, and another under the water, communicating with the interior by an opening just within the upper entrance.

During his search after these animals, Mr. Bennet made frequent inquiries of the natives as to the fact of this animal laying eggs or not, but the answers he obtained were seldom satisfactory, perhaps from each party mistaking the other's meaning. It is now a clearly-ascertained fact, that the young are suckled by their mother, and, consequently, it is not at all probable that they are hatched from eggs. When one of the blacks was asked on what the young were fed, his answer was, "All same you white fellu first habe milliken, then make patta (eat) bread, yaul, &c." After many fruitless attempts, Mr. Bennet succeeded in capturing a full-grown female unhurt, but after keeping it for a few days, it managed to escape from its place of confinement. He afterwards succeeded in taking two young ones, of which he gives the following account:—

On arriving at the termination of a very large burrow, a growling was distinctly heard, but although the animals were so far exposed that their fur was seen, and although there was abundance of growling, no attempt was made on the part of the animals to escape. On being taken out they were found to be full-furred young ones, coiled up, asleep, and they growled exceedingly on being exposed to the light of day. There were two, a male and female, of the dimensions of ten inches, from the extremity of the beak to that of the tail. They had a most beautifully sleek and delicate appearance, and seemed never to have left the burrow.

The eyes of the aborigines, both young and old, glistened when they saw the fine condition of the young *Mullagongs*. The exclamations of "*Cobbery fat*," (large, or very fat,) and "*Murry budgereee patta*," (very good to eat,) became so frequent and so earnest, that I began to tremble for the safety of my destined favourites; and having given them in charge to the natives to convey to the house, I turned and rode back more than once, from a fear lest they should be all devoured. But I was wrong in my calculation on the natives' power of resisting temptation, for they brought them all home safe, and were delighted with the reward of tobacco which was given them for their trouble.

I arrived with my little family of *Ornithorhynchi* safe at Sidney, and as they survived for some time, an opportunity was afforded me of observing their habits. The animals appeared often to dream of swimming, as I have frequently seen their fore-paws in movement as if in the act. They usually reposed side by side, like a pair of furred balls, and awful little growls issued from them when disturbed; but when very sound asleep, they could be handled with impunity. They were very playful at times, sporting together like young puppies.

Their eyes being placed so high on the head, they do not see objects well in a straight line, and consequently run against everything in the room, and upset whatever was easily overturned. They were particularly cleanly in their habits, and were constantly cleaning their fur, using their hinder feet after the manner of a comb. In the room in which they were confined was a chest of drawers, and they

were frequently found on the top of them. It was some time before it could be discovered in what manner they reached this elevated spot; at length it was found out, that they succeeded in reaching it by climbing up between the back of the drawers and the wall, placing their feet against the wall and pressing hard with their back against the back of the drawers. With all the care that could be bestowed upon them, they lived but a few weeks.

WIT.

BARROW'S description of WIT, as it is seen in a virtuous and wise man, is a picture of himself. "It is when it enlightens the intellect by good sense, conveyed in jocular expression; when it infringes neither on religion, charity, and justice, nor on peace; when it maintains good humour, sweetens conversation, and makes the endearments of society more captivating; when it exposes what is vile and base to contempt; when it reclaims the vicious, and laughs them into virtue; when it answers what is below refutation; when it replies to obloquy; when it counterbalances the fashion of error and vice, playing off their own weapons of ridicule against them; when it adorns truth; when it follows great examples; when it is not used upon subjects improper for it, or in a manner unbecoming, in measure intemperate, at an undue season, or to a dangerous end.

BETTER it is, toward the right conduct of life, to consider what will be the end of a thing, than what is the beginning of it; for what promises fair at first may prove ill, and what seems at first a disadvantage, may prove very advantageous.—WELLS.

CUSTOM so far regulates the sentiments, at least of common minds, that I believe men may be generally observed to grow less tender, as they advance in age. He who, when life was new, melted at the loss of every companion, can look in time, without concern, upon the grave into which his last friend was thrown, and into which himself is ready to fall; not that he is more willing to die than formerly, but that he is more familiar to the death of others, and therefore is not alarmed so far as to consider how much nearer he approaches his end. But this is to submit tamely to the tyranny of accident, and to suffer our reason to lie useless. Every funeral may justly be considered as a summons to prepare for that state into which it shows us that we must some time enter; and the summons is more loud and piercing, as the event of which it warns us is at less distance. To neglect at any time preparation for death, is to sleep on our post at a siege; but to omit it in old age is to sleep at an attack.—RAMBLER.

EXTERNAL happiness and misery are not in this life always the consequences of virtue and vice; this world is not the theatre of Divine retribution; but there is a life beyond the grave, where the good will receive their reward, and the wicked be punished.—MICHAELIS.

THOUGH the expectations of mankind are perhaps generally more sanguine than the event will warrant, yet it is surely a comfort inexpressibly great, to be the instruments of doing what good we can, though it should not amount to so much as we could wish.—TUCKER.

EXPERIENCE teaches us that those faculties of our nature that are most cultivated become most acute: if intellectual pursuits are neglected, the intellect itself becomes weakened; in proportion as the senses are exercised, they are strengthened; in proportion as the pleasures they afford us stand high or low in our estimation, we graduate towards the brute, which knows no pleasures but those of sense; or towards the angel who knows no pleasures but what are spiritual.—KIRBY.

AN AUTUMN THOUGHT.

WE watch the Summer leaves and flowers decay,
And feel a sadness o'er the spirit thrown,
As if the beauty fading fast away
From Nature's scenes, would leave our hearts more lone,
More desolate, when sunny hours are gone,—
And much of joy from outward things we find,
But more from treasures that may be our own
Through Winter's storm, the higher hopes of mind,—
The Trust which soars from Earth—Earth has no chains to bind.

THOUGHTS ON MARRIAGE.

WE may often observe, that a sincere mutual affection at the beginning, is not sufficient to procure a continuance of happiness to married persons. And this happens, not from the want of amiable qualities on either side, nor through any imprudence which the most intimate friends of the parties can observe; but from an error in the foundation of their plan. Having been too much elated with their prospects, having fondly terminated their hopes in each other, and forgotten their immediate dependence on the Almighty, they have not enjoyed that blessing from above, which is necessary to secure the permanent happiness of the matrimonial state.

Mr. Addison, and some other writers, have occasionally treated of many little improprieties which married persons are apt to commit. Their instructions upon these heads are worthy of notice in their proper place: but none of them (that I have seen) go to the bottom of the subject. The great impropriety, and the first cause of every other miscarriage, is our unhappy propensity to propose a rest and satisfaction merely in the creature. So far as we attempt this, the Lord, either in mercy or in judgment will assuredly disappoint us. He will multiply the sorrows of those who thus presume to seek after another God; for He is jealous of his glory, and will not give it to our idols. It is the Holy Scripture alone which furnishes us with rules or motives sufficient to direct and animate us in the various relations of life; especially in this, which is of all others the most honourable, the most intimate, and the most important. It is the most honourable, as instituted by God himself, and appointed as an emblem of the love and indissoluble union between Christ and his church; in which respect the apostle scruples not to call it a great mystery. It is the most intimate, because it is expressly ordained to supersede all other relations and connexions; "for this cause shall a man leave his father and mother, and cleave to his wife; and they two shall be one flesh." And it is by far the most important, as having a necessary influence, either good or bad, upon every future action and circumstance of our lives.

It would not be an easy task to point out and illustrate the nature, rise, and improvement of that peculiar sympathy of soul, which takes place in those whose hearts as well as hands are joined in marriage; which so far resembles the joy of a good conscience, that it is hard to represent it to those who have not felt it, and next to impossible to describe it but from experience. Conjugal affection, wherever it appears, exhibits the fairest prospect of human happiness; though too often, it is like a beautiful edifice raised upon an insufficient foundation. But when it is formed and cherished under the influence of true religion, it is firm, and lasting.

I write now for those, whose temper or circumstances inclining them to a married life, have yet their choice to make. Few persons, warm in the pursuit of their own inclinations, and relying on the sufficiency of their own judgments, will be either pleased or profited by my remarks; but those who are truly serious and considerate, will perhaps discover their expediency. At all events, the following rules are of the utmost importance in this matter.

Whoever would hope for comfort in the marriage relation must, in the first place, humbly submit himself and his designs entirely to the disposal of the Almighty, and earnestly seek the direction of His Wisdom and Providence. We have a promise that if we acknowledge God in all our ways, he will direct our paths: but if we reject his offer, and choose for

ourselves, what have we to expect but to be filled with vicious or vain desires, and, when we have sown the wind, to reap the whirlwind?

And as it is necessary to begin this great design in submission to the will of God, so it must also be conducted, with respect to the end, in subordination to his glory. We cannot, consistently with our Christian profession, either entreat or expect a blessing upon such of our designs as may terminate solely in ourselves. So far as we can, upon the closest consideration, foresee the circumstances and engagements which our new relation may bring us into, it behoves us to resolve (by Divine assistance), that we will act in them as those who are not their own, but "bought with a price."

The due observance of these two points will necessarily lead to a third, namely, to make choice of such a partner for life as we have good reason to believe is under the same principles; and not to be so misled by any plausible appearances as to unite ourselves with any person in whom these principles have not, in some measure, taken place. A want of care in this matter has filled many a pious heart with anguish through all the remaining years of life. When a truly religious person marries one who has no relish for spiritual things, that individual is taking up a heavy burden which can never be laid aside. How greatly must the worship of God in the closet, and in the family, be interrupted or distracted in such a case! How must the improvement of children and domestics be hindered, and the force of good example lessened! How must the Christian husband be wounded in his soul, when, deeply impressed with the love of God shed abroad in his heart, he would fain look upon a beloved wife as the sharer of his joys*; or when, under distress or temptation, he needs or earnestly desires the assistance of her counsel and prayers; but, in either case, can meet with no return but coldness, surprise, and misapprehension!

How must it add to his grief in a time of trouble, and damp his pleasures in brighter hours, to reflect on the dangerous situation of one whose interest is dearer to him than his own life! If Divine Providence takes her from him in such estate, how deep and bitter must be his mourning! How hard will he find it to silence the bodings of his heart, and to resign her into the hands of that God to whom, as he fears, she lived and died a stranger!

If he should be called first from her, with what anguish must it perhaps fill his dying hours, to think that their present parting is too likely to be an eternal separation; and that he leaves her in the midst of the snares and calamities of an evil world, without an interest in those precious promises which, he knows, are alone able to support her! An union of affection which either obviates or softens all other trials, will in this case greatly heighten and aggravate the distress. The more tenderly they love, the more sensibly they must grieve each other while together, and the more awful and overwhelming their situation will become.

How different is the experience of those who are united in grace as well as in affection! How are their pleasures heightened, and their necessary trials alleviated, by the sense of their Redeemer's love, while their prayers are enlivened and their praises multiplied upon each other's account! The one who may depart first, can with faith and comfort commit the survivor to the gracious protection of their Heavenly Father. The one who may remain longest

* Sure is the knot that true religion ties;
And love that's rightly grounded, never dies.

here, has the unspeakable satisfaction of knowing that the dear companion is safely arrived at the haven of eternal rest; and that a few revolving years will re-unite them in a state of unchangeable happiness, beyond the power of death, sin, or sorrow, for ever!

[From an old Periodical.]

NEWSPAPER LITERATURE.

NO. IX.

IN entering upon the subject of the Newspaper-Press of America, and in endeavouring to elicit therefrom an argument against an unlicensed or unrestricted newspaper-press in this country, it may be necessary to premise, that we shall diverge as little as possible from a bare narration of facts, discarding political bias, and deductions that may admit of dispute. Our only object is, to treat the subject as a *literary*, rather than as a *political* question; although, from its peculiar nature, it may be sometimes difficult wholly to avoid overstepping the line we have thus laid down.

In the immense, but thinly-populated, regions which form the United States, the inhabitants are blessed with a larger number of newspapers than the whole of Europe can boast of: their *daily* journals alone are upwards of fifty; and the total number of separate newspapers published within the States exceeds one thousand! In addition to these, a host of religious journals make their appearance at short and regular intervals; but the great majority of them are more conspicuous for polemical acrimony, than for their utility as a means of spreading religious knowledge. The character of their political journals has been so ably drawn by a late writer on American manners and society, (Monsieur de Tocqueville,) that we shall adopt his comprehensive description of their characteristics, and afterwards endeavour to prove the correctness of his remarks, by adducing a few examples of transatlantic journalism.

The characteristics (says M. de Tocqueville) of the American journalist consist in an open and coarse appeal to the passions of the populace; and he habitually abandons the principles of political science to assail the characters of individuals, to track them into private life, and to disclose all their weaknesses and errors. Nothing can be more deplorable than this abuse of the powers of thought. It cannot be denied, however, that the effects of this extreme license of the press tend indirectly to the maintenance of public order. The individuals who are already in the possession of a high station in the esteem of their fellow-citizens, are afraid to write in the newspapers; and they are thus deprived of the most powerful instrument which they can use to excite the passions of the multitude to their own advantage. The personal opinions of the editors have no kind of weight in the eyes of the public; the only use of a journal is, that it imparts the knowledge of certain facts; and it is only by altering or distorting those facts that a journalist can contribute to the support of his own views.

We cannot agree with the writer of the above passage, that "this extreme license of the press tends," either directly or "indirectly, to the maintenance of public order;" on the contrary, we suspect that one species "of the influence of these papers upon the taste and the morality of the American people," is developed in that absence of public order, which recent accounts from America prove to exist; and that some of the enormities of "Lynch law," tarring and feathering, &c., are to be traced to the gradual infusion of mental poison into the humbler classes, through the ready channel of the periodical press of America.

That "the personal opinions of the editors have no kind of weight in the eyes of the public," will

readily be credited, when we find that the proprietors of newspapers in America, in a great majority of cases, do not employ even ordinary talent in their production; and that the persons who are so employed, are continually thrusting themselves *individually* before their readers, in a style that would be considered in England, as partaking of the most impertinent and disgusting familiarity. Thus, one of these gentry gravely apologizes to his readers for the non-appearance of his paper at the regular time of publication, by saying "that he was engaged that day in cow-hiding a fellow who had slandered him, and didn't get through it early enough to get on with his paper!" Another states, as a cause for the absence of the usual editorial remarks in one of his numbers, that "the weather had been so cold, that he was obliged to sit up all night in his office with a couple of *devils** rubbing his head to keep his ideas from freezing!" A third editor makes his own marriage the subject of his leading remarks, and "desires all his numerous readers to rejoice in his happiness." He then proceeds,—

It is not good that man should be alone. The editor has the pleasure of informing his numerous and respectable readers, that he has taken a partner, not for one, two, or any term of years; but so long as we both shall live: not for the purpose of assisting in the labours of the printing-office, but to participate in life's joys and vicissitudes.

The passages above quoted, it will be said, are harmless foibles; and such they are: for we should be sorry to offend the good taste of our readers, by adducing other passages which might be selected in abundance, and which do not possess the same harmless character. But the passages brought forward will serve to show, how undignified in style, and how different from an English newspaper, are the publications into which such foibles are constantly suffered to intrude. Another point, which marks the low scale of the American newspaper-press, is the cool effrontery with which its conductors insult the common-sense of their readers, by the insertion of the most improbable falsehoods, which they support with a circumstantiality of detail, that renders them broadly farcical. But a still more offensive feature in their journals, is the method in which the advocates of different opinions carry on their warfare with each other. Personal abuse of the lowest cast, is generally substituted for argument; and the common decencies of society are frequently outraged in the language employed. In a recent arrival of Maryland papers, in one of the numbers, the editor prides himself upon having satisfactorily refuted the opinions of a rival, by proving that "his soul, his nasty little soul, is not large enough to fill the socket of a musquito's eye!"

There is, however, occasionally, some humour in the lucubrations of American scribes, although it is often much alloyed by being sadly out of place. The editor of a Charleston paper addresses the following to his readers:—

An editor of the Mordecai Noah School, somewhere in the East, who was lately requested to advertise for an apothecary, and take his pay in drugs, utterly refused to trade; and says he will take nearly all sorts of produce in payment for papers and advertising,—such as parsneps, wooden combs, old clothes, cold victuals, &c., but he won't take physic. The other day, a gentleman proposed to subscribe to the *Republican*, and to pay for it in tomb stones. With our eastern brother we can say, that we will take nearly all sorts of produce even including physic; but we would rather be excused from tomb-stones.

Another editor amuses his readers at the expense of an opponent, in these terms:—

* A cant term, applied to an errand-boy in a printing-office.

We heard lately of a newspaper-establishment in Indiana, somewhat novel in character. A printer has provided himself with a supply of wooden types, and having set up the form of his paper, each of his subscribers furnishes him with a piece of linen or muslin of the proper size: whereupon the printer inks his types with swamp-mud, and takes the impression upon the cloth for each patron, who receives his paper on Saturday, and after reading it, has the cloth washed, and sent back in time for the next impression.

The conductor of a Mississippi journal apologizes for the number of typographical errors in his columns, by stating that

His types have been so often used in notices of rail-roads and steam-boats, that they have the principle of locomotion so thoroughly infused into them, as to be continually jumping up and down, and not unfrequently alighting in places appointed for others.

Another dilemma is thus accounted for:—

It will be noticed (says the apologist,) that our paper bears the date of Friday, and we verily intended to have published it on that day, but the arrival of the president knocked all our compositors into "pye," and we were not able all Thursday to get more than one of them together at a time.

This reminds us of a similar event which occurred a few years ago, in the West of Ireland, in which case the editor of the "broad sheet" was compelled to send it forth with two of the pages unprinted on; alleging, in excuse, that the festivities of the season (Christmas) had had so powerful an effect upon his workmen, as to incapacitate them for any other occupation than that of swallowing whisky!

The American editors have an ingenious way of *dunning* those subscribers who neglect to pay up their subscriptions. We subjoin a "Notice to Readers."

Unwarrantable liberties are not unfrequently taken with the editors of newspapers, and liberties are sometimes taken of a different kind. We have received a letter through the post-office, from a gentleman for whom we entertain the highest respect, apologizing for taking the liberty of enclosing two dollars for our very interesting and useful paper. We not only from our hearts forgive the gentleman, but earnestly beg that some others of our numerous subscribers who are in arrears, would follow his example, and take liberties with us likewise.

Some of these extracts will, perhaps, appear to warrant a more favourable opinion of the American press than we have previously expressed; and our readers may be inclined to consider M. de Tocqueville's censures as too harsh and sweeping. But the same tone of familiarity which gives rise to the quaint humour we have instanced, unfortunately permits vulgarity and slander to run riot whenever circumstances call them into action.

[To be continued.]

SUSPICION is not less an enemy to virtue than to happiness: he that is already corrupt is naturally suspicious, and he that becomes suspicious will quickly be corrupt. It is too common for us to learn the frauds by which ourselves have suffered; men who are once persuaded that deceit will be employed against them, sometimes think the same arts justified by the necessity of defence. Even they whose virtue is too well established to give way to example, or be shaken by sophistry, must yet feel their love of mankind diminished with their esteem, and grow less zealous for the happiness of those by whom they imagine their own happiness endangered.—*Rambler.*

Of all literary exertions, whether designed for the use or entertainment of the world, there are none of so much importance, or so immediately our concern, as those which let us into the knowledge of our own nature. Others may exercise the understanding or amuse the imagination; but these only can improve the heart and form the human mind to wisdom.—*WARBURTON.*

We insensibly imitate what we habitually admire.—*COLERIDGE.*

PHOSPHORESCENCE OF THE SEA.—MARINE ANIMALS.

THE TUNICARIES.

THOUGH several of the animals belonging to this class are interesting on account of their singularity and beauty, I shall only select two, one from the aggregated, and one from those that are simple, for description. Who would think, asks Lamarck, that the *Pyrosome* was an assemblage of little aggregate animals; any one that looked at this animal, or at Savigny's figure of it, would mistake it for a simple polype*, with a number of leaf-like appendages growing from its skin: but a closer examination would give him a very different idea, and he would discover, with wonder, that it was a mass filled with animals, united by their base, exceeding the number of the above appendages. The common body that contains these creatures resembles a hollow cylinder closed at its upper extremity, and open at the lower; this body or mass is gelatinous and transparent, a number of tubercles of a firmer substance than the tube, but at the same time transparent, polished, and shining, differing in size, cover the surface; some being very short, and others longer, and the longer ones terminated by a lance-shaped leaflet. At the summit of each tubercle is a circular aperture, without tentacles, opposite to which is another circular orifice which is toothed.

The *Pyrosomes* are the largest of the phosphoric animals, the Atlantic species being about five inches long, and the Mediterranean sometimes attaining to the length of fourteen. Their power of emitting light is so great, that in the night they cause the sea to appear on fire. Nothing can exceed the dazzling light and brilliant colours that these floating bodies exhibit—colours varying in a way truly admirable, passing rapidly every instant, from a dazzling red, to saffron, to orange, to green, and azure, and thus reflecting every ray into which the prism divides the light, or which is exhibited by the heavenly bow. In the water their position is generally horizontal, and their locomotion very simple: they float, as they are carried by the waves or the currents; they can, however, contract and restore themselves individually, and have also a very slight general movement, which causes the water to enter their common cavity, visit their gills for respiration, and convey to them the substances which constitute their food. M. Le Sueur observed that when the central cavity of the common tube was filled with water, it was immediately spirted forth in little jets from all the extremities of the tubercles with which the surface was covered, from whence it appears that the external aperture of the individual animal is really the anal aperture, and the opposite or internal one the mouth, which thus received the water and the food it conveyed from the common tube, and rejected it by the orifice of the tubercles.

The internal organization of the little tenants of the common tube is given with considerable detail by Savigny: the general opening at the summit, or truncated end of the tube, has an annular diaphragm, from which it appears that they are arranged in circles round it, so that in this respect they form rays; in shape they somewhat resemble a Florence-flask, and have alternately a long and short neck. The cavity below the neck is filled by the gills and various intestines, which it would be difficult to describe intelligibly, in a popular manner.

No species of the genus appears to have been met with in our seas; we may therefore conjecture that a

* See *Saturday Magazine*, Vol. IV., p. 84.

warmer climate is essential to them. Their general functions, beyond that of illuminating the great theatre in which their Creator has placed them, and probably affording food to some of the inhabitants of the seas in which they are found, have not yet been ascertained.

Some of the Tunicaries are stated to have recourse to a singular mode of defence. When seized by the hand, contracting themselves forcibly, they eject the water contained in their cavities, so as often suddenly to inundate the face of the fisherman, who, in the astonishment of the moment, suffers the animal to escape. If this be a correct statement, it proves that these animals are not altogether without some degree of intelligence; they know when they are assailed, and how to repel the assailant.

The animals are fixed to rocks, shells, and sometimes to sea-weeds. The *Cynthia Momus* is remarkable for its changes of colour, being sometimes white, sometimes orange, and sometimes of a flesh-colour. As all this tribe are fixed, their history furnishes no other interesting traits.

Nothing, however, is more striking than the infinitely diversified forms into which Creative Power has moulded these little frail animals that are destined to inhabit, and numbers of them to illuminate, the wide expanse of waters occupying so large a portion of the globe.

[Abridged from KIRBY'S *Bridgewater Treatise*.]

THE standing objection to botany, has always been, that it is a pursuit that amuses the fancy and exercises the memory without improving the mind or advancing any real knowledge; and, where the science is carried no further than a mere systematic classification, the charge is but too true. But the botanist who is desirous of wiping off this aspersion, should be by no means content with a list of names; he should study plants philosophically,—should investigate the laws of vegetation,—should examine the powers and virtues of efficacious herbs,—should promote their cultivation, and graft the gardener, the planter, and the husbandman, on the phytologist: not that system is by any means to be thrown aside; without system the field of nature would be a pathless wilderness; but system should be subservient to, not the main object of our pursuit.—WHITE of Selborne.

SECURE as we may sometimes seem to ourselves, we are in reality never so safe as to have no need of a superintending Providence. Danger can never be at a distance from creatures who dwell in houses of clay.—COWPER.

KING WILLIAM THE THIRD remarked, that "where there is an *unwillingness* to do anything, reasons are easily found, to prove that impossible which is not so."

"My friends," said Oberlin*, on one occasion, wishing to give, if possible, some idea of eternity, "if a single grain of sand were brought into this room once every hundred years, many centuries must elapse before the floor could be covered. That moment would, however, arrive; but, even when it came, the spirits of the blest would be still in the enjoyment of heavenly happiness, for they are immortal;—and if a grain of sand were to be brought at the same stated interval for many thousands of centuries, until the room were entirely filled, those happy beings would still be immortal, and eternity would be as boundless as when the first grain was brought."—*Memoirs of Oberlin*.

* See *Saturday Magazine*, Vol. III., p. 246.

If we would live as we ought to do, we must so enjoy the present, that we may look upon the past with pleasure, and upon the future with hope. The more we can bring ourselves to consider the importance of the future, the more likely we are duly to regulate the present; and the happiness of this life mainly depends upon our reference to that in the life to come.—*The Original*.

ON THE STUDY OF NATURAL HISTORY

AS A BRANCH OF EDUCATION.

It has often been a matter of surprise and regret, that the study of natural history, or of those physical objects which are perpetually before our eyes and daily strew our path, should not have taken deeper root, and even formed an elementary part of education in the scholastic institutions of Great Britain. Considering the subject on the score of amusement merely, it is assuredly one of the most delightful occupations that can employ the attention of human beings.

But it has higher claims on our notice; it leads us, as Mr. Jesse justly observes, "to investigate and survey the workings and ways of Providence in this created world of wonders, filled with his never-absent power: it occupies and elevates the mind, is inexhaustible in supply, and, while it furnishes meditation for the closet of the studious, gives to the reflections of the moralizing rambler admiration and delight, and is an engaging companion, that will communicate an interest to every rural walk." In fact, every object in the creation may truly be said to be worthy of regard in the philosophy of nature. They are all the formation of Supreme Intelligence; they are all created for some definite purpose; and we shall find, on a minute examination into the mechanism and structure even of the meanest reptile that crawls, the most obvious and nice adaptation of the means to the end; thus furnishing to our narrow understandings some faint conception of the powers of Infinite Wisdom.

But should these higher considerations fail to give an interest to the innumerable and infinitely varied objects that fill the universe, it might be supposed that the exquisite beauty of some, the intrinsic value of others, and the indispensable utility of many, would be sufficient inducements to lead to the investigation of their properties, habits, and economy; and to make the study of natural history a subject of systematic education. In all these respects the researches of each department will amply repay the labour of the student. The geologist, for instance, finds his reward in the knowledge he obtains of the formation of the crust of the globe we inhabit, and which, thin as it is, compared with the whole mass, supplies the precious metals that constitute the representatives of our wealth; the diamonds, the emeralds, the rubies, and all the varieties of precious stones, which add brilliancy to beauty; the marbles, and granites, and porphyries, which contribute to the strength and splendour of our public buildings and private dwellings. The botanist takes a deep interest in the contemplation of the vegetable world, from which we derive most of our comforts and our luxuries; our food, our clothing, and our fuel; "wine that maketh glad the heart of man, and oil to make him a cheerful countenance." The zoologist is instructed to what species of the animal part of the creation we are most indebted for assistance and security—which of them, while living, aid us most in our enjoyments and necessities,—and which, when dead, contribute their share to our food and raiment.

It is, however, to the vegetable part of the creation that the great masses of mankind, inhabiting the equinoctial and tropical regions, are principally indebted for their sustenance: in the temperate climates, where grasses abound, man mixes animal food with the produce of his agricultural labours; and the nearer he approaches the Arctic circle and the Polar regions, the more he has to depend on animal food; till, having arrived at the extremes of the habitable

world, he disputes the possession of seals and whales with the bears and foxes, gorging himself with their flesh, with the avidity of those beasts of prey that prowl about in these desolate and inhospitable regions.—*Quarterly Review.*

DUTIES OF THE PROPRIETORS OF LAND.

IF we survey the various classes and conditions of society, we shall find few so honourable, so important, so fruitful in usefulness, as that of the proprietor of land. Other men must struggle with the world, before they raise themselves into distinction and influence; he, on the contrary, is born a ruler of the people; his opinions become in many ways the model of theirs, and his power can make itself felt within the walls of the poorest cottage, in diffusing sorrow or disseminating joy; he, indeed, has the power of realizing the beautiful description of the patriarch of old; "I delivered the poor and the fatherless, and him that had none to help him."

How many are the opportunities which such a situation affords to a noble mind for the exercise of active virtue! How many are the blessings which even common kindness may diffuse! How well, too, is this situation suited to the exercise of female humanity, and, in the scenes far from the turbulent pleasures of fashionable life, how well may female virtue exert its noblest powers. To be the patterns and protectors of their sex, to cherish the purity of domestic virtue, to guide the mother's hand in the rearing of her children, and teach them the important lessons of religious education and domestic economy;—to awaken by kind praise the ambition of the young, and to soothe with lenient hand the sorrows of the old. These are the occupations which such situations afford to female benevolence, the means by which they may exalt the character and extend the virtues of their sex, and shed upon the lowly cottage of the peasant blessings which may mitigate its wants and its poverty.

Life, with all its riches and all its power, must soon have an end, and there is an hour coming when all will be forgotten but the use which has been made of them. It is a character of our religion not less distinguished than that of its being accompanied by miraculous assistance, that the Gospel was "preached to the poor." In this mighty design of Providence you are at present the agents; I am speaking to Christians, to those who know the value of religion, and have felt how little every other possession is able to give peace to the heart of man. How necessary is it to the humbler classes of society, to be taught that in religion alone can they truly find the compensation of all their difficulties! On the use that is made of this master-spring of human happiness, must depend whether we are to be an abandoned or a pious people. Let all those, then, who return from the fatigues of business and the tumult of unreal pleasures to the calm joys and dignified occupations of rural life, return like the Summer's sun when he goeth forth in his might, to give beauty to the scenes of nature, and happiness to the dwellings of man. Let them be the fathers of the people, exerting that exalted charity which is not satisfied with relieving poverty, but prevents it; which imparts to the young the means of instruction, and awakens in manhood the spirit of industry. Let them be also the leaders of the people in righteousness, and while employing the benevolence of men in guiding them in peace through things temporal, employ the still higher benevolence of Christians in guiding them in hope to things eternal.—ALISON.

SONG OF THE STARS.

WHEN the radiant morn of creation broke,
And the world in the smile of God awoke,
And the empty realms of darkness and death
Were moved through their depths by his mighty breath
And orbs of beauty, and spheres of flame
From the void abyss, by myriads came,
In the joy of youth, as they darted away,
Through the widening wastes of space to play,
Their silver voices in chorus rung;
And this was the song the bright ones sung:—

"Away, away! through the wide, wide sky,—
The fair-blue fields that before us lie,—
Each sun, with the worlds that round us roll,
Each planet, poised on her turning pole,
With her isles of green, and her clouds of white,
And her waters that lie like fluid light.

"For the Source of glory uncovers his face,
And the brightness o'erflows unbounded space;
And we drink, as we go, the luminous tides
In our ruddy air and our blooming sides.
Lo, yonder the living splendours play:
Away, on our joyous path away!

"Look, look, through our glittering ranks afar,
In the infinite azure, star after star,
How they brighten and bloom as they swiftly pass!
How the verdure runs o'er each rolling mass!
And the path of the gentle winds is seen,
Where the small waves dance, and the young woods lean.

"And see, where the brighter day-beams pour,
How the rainbows hang in the sunny shower;
And the morn and the eve, with their pomp of hues,
Shift o'er the bright planets, and shed their dews;
And, 'twixt them both, o'er the teeming ground,
With her shadowy cone, the night goes round!

"Away, away!—in our blossoming bowers,
In the soft air, wrapping these spheres of ours,
In the seas and fountains that shine with morn,
See, love is brooding, and life is born,
And breathing myriads are breaking from night,
To rejoice, like us, in motion and light.

"Glide on in your beauty, ye youthful spheres,
To weave the dance that measures the years.
Glide on, in the glory and gladness sent
To the furthest wall of the firmament,—
The boundless visible smile of Him,
To the veil of whose brow our lamps are dim."—BRYANT.

I ENVY no quality of the mind or intellect in others; not genius, power, wit, or fancy: but if I could choose what would be most delightful, and I believe most useful to me, I should prefer a firm religious belief to every other blessing; for it makes life a discipline of goodness,—creates new hopes, when all earthly hopes vanish; and throws over the decay, the destruction of existence, the most gorgeous of all lights; awakens life even in death, and from corruption and decay calls up beauty and divinity: makes an instrument of torture and of shame the ladder of ascent to paradise; and far above all combinations of earthly hopes, calls up the most delightful visions of plains and amaranths, the gardens of the blest, the security of everlasting joys, where the sensualist and the sceptic view only gloom, decay, annihilation, and despair.—SIR HUMPHRY DAVY.

ASSAFÆTIDA, GIGANTIC FENNEL, (*Ferula assafætida*.)

THIS plant, which is a native of Persia, is famous for its useful properties in many diseases, and also for its powerful and unpleasant taste and smell; in spite of this, however, it was in former times used not only as a medicine, but also as a seasoning to food.

The root from which the Assafætida of commerce is prepared is perennial, very solid and heavy, and increases to the size of a man's arm or leg; it is covered with a blackish-coloured bark, and the internal substance is white and fleshy, and abounds with a thick milky juice, of an exceedingly strong and fetid smell. The stem which is round and

smooth, and about six or seven inches in circumference at the base, rises luxuriantly to the height of three or four yards, or more.

The plant is said to vary much, according to the soil in which it grows, not only in the shape of the leaves, but in the peculiar nauseous quality of the juice which impregnates them; this becomes so far altered that the roots are sometimes eaten by the goats.

The following is the method employed in collecting the gum assafoetida in some parts of Persia. At the season of the year when the leaves begin to decay, the oldest plants are selected, the earth which encompasses the root is partially removed, so as to leave its upper portion exposed; the leaves and stalk are then twisted off, and used with other vegetables as a covering to screen it from the sun, and upon this covering a stone is placed to prevent the wind from blowing it away. In this state the root is left for forty days, after which the covering is removed, and the top of the root cut off transversely; it is then screened again from the sun for forty-eight hours, which is thought a sufficient time for the juice to exude from the wounded surface of the root; it is then scraped off with a proper instrument, and exposed to the sun to harden. This being done, a second transverse section is made, but no thicker than is necessary to remove the remainder of the hardened juice and open the pores afresh; it is then again screened for forty-eight hours, and the juice obtained a second time by the same method; and this operation is sometimes performed as many as eight times upon one root, observing, however, that after every third section, it is suffered to remain untouched for eight or ten days, in order that it may recover a sufficient stock of juice. Thus, to exhaust

one root of its juice, computing from the first time of collecting it to the last, a period of nearly six weeks is required, when the root is abandoned and soon perishes.

The whole of this business is conducted by the peasants, who live in the neighbourhood of the mountains where the drug is procured; and as they collect the juice from a number of roots at the same time, and expose it in one common place to harden, the sun soon gives it that consistence and appearance in which it is imported into Europe.

The intensity of the smell of this gum is a proof of its goodness, and the odour of the recent gum is, beyond all comparison, more fetid than that of the Assafoetida as it is met with in commerce. In the gathering-season, the whole district in which it is found smells of it. A single ship is exclusively devoted to transporting the bulk of the crop to the ports in the Persian gulf, and if small parcels are brought by other vessels, they are tied to the mast-head.

Assafoetida is employed in Europe in many disorders, and although its smell and taste are extremely offensive, it is said never to produce sickness, and the disgust at first entertained at taking it soon wears off. It is employed in cases of spasms, lowness of spirits, in some stages of the whooping-cough, and as a worm-medicine for children. One great advantage of this medicine is, that it can be administered with great safety.

To show the extent to which habit will reconcile the taste to the most nauseous dose, we may observe that a certain caste of Hindoos, who partake of no animal food, not only use Assafoetida to a great extent in their cookery, but rub the mouth with it before meals, in order to produce an appetite.



COLLECTING THE GUM ASSAFOETIDA.